

CLAIMS

Amend the claims as follows.

Cancel claim 1.

Cancel claim 2

Cancel claim 3

4. (Previously Presented) The encoder according to claim ~~[[1]]~~ 21 wherein the spread spectrum encoder includes a storage device used for storing the one or more spread spectrum codes and a shifter for serially encoding some of the data values with the one or more spread spectrum codes.

5. (Previously Presented) The encoder according to 4 wherein the shifter includes:
a multiplexer having inputs for receiving different chips of the spread spectrum codes and an output;
a code counter coupled to the multiplexer sequentially selecting different chips of the spread spectrum codes for outputting from the multiplexer; and
an exclusive-OR circuit combining the outputs from the multiplexer with the data values.

6. (Previously Presented) The encoder according to claim 5 wherein the slip encoder includes a slip counter that delays the code counter from outputting the chips for adjacent spread spectrum codes according to associated data values.

Cancel claim 7.

Cancel claim 8.

Cancel claim 9.

10. (Previously Presented) The spread spectrum correlator according to claim [[9]] 22 wherein a number of time units associated with the time gaps corresponds with different data values.

11. (Original) The spread spectrum correlator according to claim [[9]] 22 wherein the spread spectrum decoder includes a storage device used for storing one or more reference spread spectrum codes; and

a sampling circuit taking samples of the spread spectrum encoded data stream and comparing the samples with the reference spread spectrum codes.

12. (Original) The spread spectrum correlator according to claim 11 including a match counter counting a number of chips for the reference spread spectrum codes that match and mismatch the samples taken by the sampling circuit and identifying data values according to the number of counted matches and mismatches.

Cancel claim 13.

Cancel claim 14.

15. (Original) The spread spectrum correlator according to claim [[9]] 22 including a data inverter identifying inverted data values output from the slip decode and inverting bits for the identified inverted data values.

16. (Currently Amended) A method for encoding data, comprising:
encoding a first set of data values into an encoded data stream using spread spectrum Pseudo Noise (PN) codes; and
encoding a second set of data values into the encoded data stream by varying an amount of time delay inserted between the transmission of sequentially generated PN codes output in the encoded data stream, the time delay being an amount of time gap inserted only after completing

transmission of a first PN code and only before starting transmission of a second adjacent PN code so that the second set of data values are associated with time gaps when PN codes are not being transmitted;

using different amounts of a total time delay from the completion of transmission of PN codes until starting transmission of adjacent PN codes for different adjacently transmitted PN codes to represent different values for the second set of data values that are not PN coded.

17. (Previously Presented) The method according to claim 16 including delaying encoding between each of the first set of data values into the encoded data stream for inserting a number of time increments between adjacent PN codes corresponding to the second set of data values.

18. (Original) The method according to claim 16 including transmitting and receiving the encoded data stream using a wireless Universal Serial Bus (USB) device.

19. (Original) The method according to claim 16 including extracting the first set of data from the encoded data stream by identifying the PN codes in the encoded data stream and extracting the second set of data from the encoded data stream by identifying an amount of time gap between the identified PN codes.

20. (Original) The method according to claim 19 including:
comparing samples of the encoded data stream with reference PN codes;
identifying bits in the first set of data values when a predetermined number of the samples match or a predetermined number of the samples mismatch the reference PN codes;
identifying an amount of time slip between the identified bits in the first set of data values; and
identifying bits in the second set of data values according to the amount of identified time slip.

21. (New) An encoder, comprising:

a spread spectrum encoder configured to encode data values with one or more spread spectrum codes and generate a corresponding spread spectrum encoded data stream; and

a slip encoder configured to encode other multiple different data values into the encoded data stream by varying time spacing between the spread spectrum codes, wherein the other data values correspond to an amount of clock periods inserted by the slip encoder between the generation of adjacent spread spectrum codes so that generation of the entire spread spectrum codes are completed and then time gaps of varying duration with no spread spectrum codes are inserted before starting generation of adjacent subsequently transmitted spread spectrum codes, where an entire total amount of the time gap from an end of transmission of the entire spread spectrum codes to a beginning transmission of the next subsequently transmitted adjacent spread spectrum code corresponds to one of the other multiple different data values that is not spread spectrum encoded and different durations of the entire total time gap used between different pairs of the adjacent spread spectrum codes represent different values for the multiple different data values.

22. (New) A spread spectrum correlator, comprising:

a spread spectrum decoder configured to decode data from a spread spectrum encoded data stream; and

a slip decoder configured to decode additional data associated with different time gaps between codes in the spread spectrum encoded data stream, wherein:

the additional data values correspond to an amount of time delay detected between adjacent spread spectrum codes in the spread spectrum encoded data stream;

the amount of time delay between transmission of adjacent spread spectrum codes are time gaps when no spread spectrum codes are being transmitted;

the time gaps start after the spread spectrum codes have been completely transmitted and before a next adjacent spread spectrum code begins being transmitted so that an entire time from an ending transmission time for the spread spectrum codes and a beginning transmission time for the next adjacent spread spectrum code is proportional to a data value for the additional data that is not spread spectrum encoded; and

different varying durations are used for the time gaps between different pairs of adjacent spread spectrum codes and the different durations for the time gaps correspond to different data values for the additional data that is not spread spectrum encoded.